SEQUENCE LISTING

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Kamrud, Kurt I.
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<120> IMPROVED ALPHAVIRUS REPLICONS AND HELPER CONSTRUCTS

<130> 9368-5

<140> US 10/804,331
<141> 2004-03-19

<150> US 60/456,196
<151> 2003-03-20

<160> 44

<170> PatentIn version 3.3

<210> 1
<211> 18
<212> PRT
<213> Artificial

<220>
<223> Alphavirus attenuating amino acid insertion sequence

<400> 1

Ile Thr Ser Met Asp Ser Trp Ser Ser Gly Pro Ser Ser Leu Glu Ile
1 5 10 15

Val Asp

<210> 2
<211> 357
<212> DNA
<213> Artificial

<220>
<223> Spacer sequence generated by AluI digest of pCDNA

<400> 2
ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgtagc aatggcaaca 60

acgttgcgca aactattaac tggcgaacta cttactctag ctaccaactc tttttccgaa 120

ggtaactggc ttcagcagag cgcagatacc aaatactgtt cttctagtgt agccgtagtt 180

aggccaccac ttcaagaact ctgtagcacc gcctacatac ctcgctctgc taatcctgtt 240

accagtggct gctgccagtg gcgataagtc gtgtcttacc gggttggact caagacgata 300

gttaccggat aaggcgcagc ggtcgggctg aacgggggt tcgtgcacac agcccag 357

<210> 3
<211> 342
<212> DNA
<213> Artificial

<220>
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<400> 3
ctattccaga agtagtgagg aggcttttt ggaggcctag gcttttgcaa aaagcttgta 60

tatccatttt cggatctgat caagagacag gatgaggatc gtttcgcatg attgaacaag 120

atggattgca cgcaggttct ccggccgctt gggtggagag gctattcggc tatgactggg 180

cacaacagac aatcggctgc tctgatgccg ccgtgttccg gctgtcagcg caggggcgcc 240

cggttctttt tgtcaagacc gacctgtccg gtgccctgaa tgaactgcag gacgaggcag 300

cgcggctatc gtggctggcc acgacgggcg ttccttgcgc ag 342

<210> 4
<211> 257
<212> DNA
<213> Artificial

<220>
<223> Spacer sequence generated by AluI digest of pCDNA

<400> 4
ctcatttttt aaccaatagg ccgaaatcgg caaaatccct tataaatcaa aagaatagac 60

cgagataggg ttgagtgttg ttccagtttg gaacaagagt ccactattaa agaacgtgga 120

ctccaacgtc aaagggcgaa aaaccgtcta tcagggcgat ggcccactac gtgaaccatc 180

accctaatca agtttttttgg ggtcgaggtg ccgtaaagca ctaaatcgga accctaaagg 240

gagcccccga tttagag 257

<210> 5
<211> 383
<212> DNA
<213> Artificial

<220>
<223> Spacer sequence generated by AluI digest of pCDNA

<400> 5
ctgcgcaagg aacgcccgtc gtggccagcc acgatagccg cgctgcctcg tcctgcagtt 60

cattcagggc accggacagg tcggtcttga caaaaagaac cgggcgcccc tgcgctgaca 120

gccggaacac ggcggcatca gagcagccga ttgtctgttg tgcccagtca tagccgaata 180

gcctctccac ccaagcggcc ggagaacctg cgtgcaatcc atcttgttca atcatgcgaa 240

acgatcctca tcctgtctct tgatcagatc cgaaaatgga tatacaagct cactcattag 300

gcaccccagg ctttacactt tatgcttccg gctcgtatgt tgtgtggaat tgtgagcgga 360

taacaatttc acacaggaaa cag 383

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<213> Artificial

<220>
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tggaatcgaa atctcgtgat ggcaggttgg gcgtcgcttg gtcggtcatt tcgaacccca 180

gagtcccgct cagaagaact cgtcaagaag gcgatagaag gcgatgcgct gcgaatcggg 240

agcggcgata ccgtaaagca cgaggaagcg gtcagcccat tcgccgccaa gcttgtatat 300

ccattttcgg atctgatcaa gagacaggat gaggatcgtt tcgcatgatt gaacaagatg 360

gattgcacgc aggttctccg gccgcttggg tggagaggct attcggctat gactgggcac 420

aacagacaat cggctgctct gatgccgccg tgttccggct gtcagcgcag gggcgcccgg 480

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ggctatcgtg gctggccacg acgggcgttc cttgcgcag 579

<210> 7
<211> 749
<212> DNA
<213> Artificial

<220>
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tggaatcgaa atctcgtgat ggcaggttgg gcgtcgcttg gtcggtcatt tcgaacccca 180

gagtcccgct cagaagaact cgtcaagaag gcgatagaag gcgatgcgct gcgaatcggg 240

agcggcgata ccgtaaagca cgaggaagcg gtcagcccat tcgccgccaa gctcttcagc 300

aatatcacgg gtagccaacg ctatgtcctg atagcggtcc gccacaccca gccggccaca 360

gtcgatgaat ccagaaaagc ggccattttc caccatgata ttcggcaagc aggcatcgcc 420

atgggtcacg acgagatcct cgccgtcggg catgcgcgcc ttgagcctgg cgaacagttc 480

ggctggcgcg agcccctgat gctcttcgtc cagatcatcc tgatcgacaa gaccggcttc 540

catccgagta cgtgctcgct cgatgcgatg tttcgcttgg tggtcgaatg ggcaggtagc 600

cggatcaagc gtatgcagcc gccgcattgc atcagccatg atggatactt tctcggcagg 660

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tcccgcttca gtgacaacgt cgagcacag 749

<210> 8
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<400> 8
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<210> 9
<211> 29
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 9
aggcgcgcct tctatgtaag cagcttgcc 29

<210> 10
<211> 30
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 10
gctggatcca tggagaaaaa aatcactgga 30

<210> 11
<211> 31
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 11
cgatctagat tacgccccgc cctgccactc a 31

<210> 12
<211> 26
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 12
cggaattcat tatcatcgtg tttttc 26

<210> 13
<211> 31
<212> DNA
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<220>
<223> PCR primer

<400> 13
cgggatcccc cctaacgtta ctggccgaag c 31

<210> 14
<211> 27
<212> DNA
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<220>
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<400> 14
aggcgcgcca ttatcatcgt gtttttc 27

<210> 15
<211> 29
<212> DNA
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<220>
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<400> 15

aggcgcgccc taggggtctt tcccctctc 29

<210> 16
<211> 42
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 16
gcggcatgcc aatcgccgcg agttctatgt aagcagcttg cc 42

<210> 17
<211> 26
<212> DNA
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<220>
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<400> 17
cgggatccat ggctgcgaga gcgtca 26

<210> 18
<211> 28
<212> DNA
<213> Artificial

<220>
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<400> 18
cgggatcctt attgagacaa ggggtcgc 28

<210> 19
<211> 24
<212> DNA
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<400> 19
ccctgctcgt gccagtgttg atgc 24

<210> 20
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<212> DNA
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<400> 20
acacgtgggg caaccctgat ttatgcctgt tgtcc 35

<210> 21
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<400> 21
agttaactca aaaagagaaa acaaaaatgc 30

<210> 22
<211> 33
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<220>
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<400> 22
agatatcttc tcttgaaaat aggacttgtc cac 33

<210> 23
<211> 25
<212> DNA
<213> Artificial

<220>
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<400> 23
gttcccgttc cagccaatgt atccg 25

<210> 24
<211> 20
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<220>
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<400> 24
gtcactagtg accaccatgt 20

<210> 25
<211> 20
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<213> Artificial

<220>
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<400> 25
taagagccgc gagcgatcct 20

<210> 26
<211> 1014
<212> DNA
<213> Homo sapiens

<400> 26
acacgtgggg caaccctgat ttatgcctgt tgtcccagtg tgattattac tagtgtaatt 60

tttcactttg agaagtgtcc aggtttggag gataaattat ctttctaata attgataccc 120

ttctcataac ctaacgggtt ccttttagta ttttatctgg gttaaaatta ccagctgtaa 180

tttggcagct ctaataagac tgcagcaata cttatcttcc atttgaacag attgttactt 240

gaccaaggga agttaatagc aaaagtaact gcagggcaca tgtatgtcat gggcaaaaaa 300

aaaaaagtaa cagcaattaa ggtttgcagg tacttagaat ttttcctgag ccaccctcta 360

gagggcagtg ttacatatat atctgtaatt atccagttac aacaaaaaaa gggctctcat 420

tcatgcatga aaatcagaaa tatttcatac tcttaaagaa cacattggaa ccaatattat 480

gattaaaaca tattttgcta agcaaagaga tattaaaaat taattcatta acattctgaa 540

catttttaa cttgtaaaaa caactttgat gccttgaata tataatgatt cattataaca 600

attatgcata gattttaata atctgcatat tttatgcttt catgtttttc ctaattaatg 660

atttgacatg gttaataatt ataatatatt ctgcatcaca gtttacatat ttatgtaaaa 720

taagcattta aaaattatta gttttattct gcctgcttaa atattacttt cctcaaaaag 780

agaaaacaaa aatgctagat tttactttat gacttgaatg atgtggtaat gtcgaactct 840

agtatttaga attagaatgt ttcttagcgg tcgtgtagtt atttttatgt cataagtgga 900

taatttgtta gctcctataa caaaagtctg ttgcttgtgt ttcacatttt ggatttccta 960

atataatgtt ctcttttag aaaaggtgga caagtcctat tttcaagaga agat 1014

<210> 27
<211> 26
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<213> Artificial

<220>
<223> PCR primer

<400> 27
cgaattctta aaacagctgt gggttg 26

<210> 28
<211> 37
<212> DNA
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<220>
<223> PCR primer

<400> 28
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<210> 29
<211> 34
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<211> 36
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<220>
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<400> 30
ggaattcggt caactgtatt gagggttaat ataaag 36

<210> 31
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<400> 31
ggagaaaaaa atcactggat atac 24

<210> 32
<211> 27
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<220>
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<210> 33
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<220>
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<210> 34
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<213> Artificial

<220>
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gatctctaga ttattgcaaa gctgcttcaa agccc 35

<210> 35
<211> 28
<212> DNA
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<220>
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<400> 35
ccatcgatct attccagaag tagtgagg 28

<210> 36
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<400> 36
caatcgccgc gagttctatg 20

<210> 37

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<400> 37
gttcccgttc cagccaatgt atccg 25

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<220>
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<400> 38
taagagccgc gagcgatcct 20

<210> 39
<211> 49
<212> DNA
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<220>
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<211> 49
<212> DNA
<213> Artificial

<220>
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<211> 24
<212> DNA
<213> Artificial

<220>
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<400> 41
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<210> 42
<211> 36
<212> DNA
<213> Artificial

<220>
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<210> 43
<211> 31
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 43
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<210> 44
<211> 37
<212> DNA
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<220>
<223> PCR primer

<400> 44
ttggcgcgcc tgtaatagcc ttggggtttc tcatggg 37